

December 2017

Johanna S. Hardin

Professor

610 N. College Ave.

jo.hardin@pomona.edu

Department of Mathematics

Claremont, CA 91711

(909) 607-8717

EDUCATION

Ph.D. in Statistics, University of California, Davis 2000

Dissertation: **Multivariate Outlier Detection and Robust Clustering with Minimum Covariance Determinant Estimation and S-Estimation.**

Adviser: Dr. David M. Rocke.

M.S. Statistics, University of California, Davis 1997

B.A. Mathematics, Pomona College, Claremont, California 1995

Adviser: Dr. Donald Bentley.

EMPLOYMENT

Professor of Mathematics, Pomona College 2015 - present

Chair, Department of Mathematics, Pomona College 2013 - 2016

Associate Professor of Mathematics, Pomona College 2008 - 2015

Assistant Professor of Mathematics, Pomona College 2002 - 2008

Staff Scientist, Fred Hutchinson Cancer Research Center 2000 - 2002

Lecturer, Seattle University, Albers School of Business and Economics 2001 - 2002

Associate Instructor, UC Davis, Division of Statistics 1997 - 1999

HONORS AND AWARDS

Wig Distinguished Professor award 2016

Mathematical Association of America Hogg Award for Excellence in Teaching 2014

Introductory Statistics

American Statistical Association Waller Education Award 2007

Appointed to CGU's Extended Graduate Faculty 2003

Project NExT Fellow 2002-2003

Graduate Student Association Travel Award, UC Davis 2000

Student Paper Competition Runner-Up, Joint Meeting of WNAR, IBS, & IMS 1999

Julius Blum Award, Division of Statistics, UC Davis 1995-1996

Phi Beta Kappa, Pomona College 1995

Sigma Xi, Pomona College 1995

Graduated Cum Laude, (B.A.), Pomona College 1995

Graduated with Honors, Mathematics Department, Pomona College 1995

FELLOWSHIPS AND GRANTS

NSF Improving Undergraduate STEM Education (IUSE) Grant Title: "Creating Opportunities for Data Proficiency in Undergraduate Students" Advisory panelist	2017-2020 \$265,853
NIH Mouse Models of Human Cancers Consortium Grant Title: "Leveraging Genetically-Engineered Mice to Optimize Pediatric Glioma" Co-principal Investigator	2015-2018 \$160,916.93
CHAS Faculty Grant Proposal for Promoting Excellence Consortium on High Achievement and Success Title: "Advising Traditionally Underrepresented Students for Retention in Mathematics" Principal Investigator	2014-2015 \$6,400
HHMI 5C Summer Collaborative Grant Title: "The role of RpoS level in regulating genome-wide patterns of transcription" Principal Investigator	Summer 2013 \$13,000
Mellon Foundation Workshop Grant Title: "Strengthening Bridges between Statistics and the Natural Sciences" Principal Investigator	January 2011 \$19,100
National Science Foundation Research Experience for Undergraduates Title: "Claremont Colleges Mathematics REU Site" Co-principal Investigator	summers 2009, 2010, 2011 \$275,000
Mellon Foundation Workshop Grant Title: "Student/Faculty Research Models in Computational Biology" Senior Personnel	summer 2008 \$16,762
HHMI Interdisciplinary Research Grant Title: "Statistical Estimation of Physiological Performance" Co-principal Investigator	summer 2007 \$10,500
Mellon Foundation Workshop Grant Title: "The Future of Statistics Consultation, Training, and Curriculum across the Liberal Arts College" Co-principal Investigator	summer 2007 \$14,000
Mellon Foundation Faculty Career Enhancement Grant Title: "Clustering Microarray Data" Principal Investigator	summer 2006 \$4,500

National Science Foundation Research Experience for Undergraduates	summers 2005, 2006, 2007
Title: “Claremont Colleges Mathematics REU Site”	
Senior Personnel	\$195,977
Center for Quantitative Life Sciences	summer 2005
Title: “Statistical Estimation of Physiological Performance”	
Co-principal Investigator	\$17,904
Howard Hughes Medical Institute	2004-2008
Title: “2004 Undergraduate Science Education Award”	
Senior Investigator on institutional grant	\$1.3 million
National Institutes of Health Conference Grant 1 R13 CA110472-01	2004 & 2005
Title: “Seventh and Eighth Meetings of New Researchers”	
Principal Investigator	\$22,000
National Institutes of Health	2003-2005
Academic Research Enhancement Award Grant #1 R15 AG021907-01A1	
Title: “Microarray Analysis of Yeast Aging”	
Co-principal Investigator	\$100,000
National Science Foundation Major Research Instrumentation Grant #0318944	2003-2006
Title: “Genomic and Genetic Analysis for Pomona College”	
Senior Investigator on institutional grant	\$233,000
University of California, Davis Fellowship	1995 - 1997
Title: “Eugene Cota-Robles Fellowship”	
Recipient	Fees, tuition, and a \$2,000 monthly stipend for two years

PUBLICATIONS AND PAPERS

• Peer-reviewed articles

28. Lu, B.[†], Hardin, J. **Prediction Intervals for Random Forests**, submitted.
27. Allison, K.[†], Hallman, M.[†], Radunskaya, A., Hardin, J., Hudgings, J. Theory and experiment to increase the speed of CCD-based thermorefectance imaging, submitted.
26. Hardin, J. **Fun, not competition, inspires this math club**, *Journal of Humanistic Mathematics*, in press.

[†]Work done as an undergraduate student.

[‡]Co-corresponding authors.

25. Pan, Y., Duron, C., Bush, E., Sims, P., Hardin, J.[†], Radunskaya, A.[‡], and Gutmann, D.[‡] **Graph Complexity Analysis Identifies an ETV5 Tumor-Specific Network in Human and Murine Low-Grade Glioma**, *PLOS ONE*, in press.
24. Hardin, J. **Dynamic Data in the Statistics Classroom**, *Technology Innovations in Statistics Education*, in press. <https://arxiv.org/abs/1603.04912>
 - Dynamic Data in the Classroom (eCOTS 2016): <https://www.causeweb.org/cause/ecots/ecots16/posters/a/7>
 - Dynamic Data (useR 2016): <https://channel9.msdn.com/events/useR-international-R-User-conference/userR2016/Dynamic-Data-in-the-Statistics-Classroom>
23. Wong, G.[†], Bonocora, R., Schep, A.[†], Beeler, S.[†], Lee, A., Shull, L.[†], Batachari, L.[†], Dillon, M.[†], Evans, C.[†], Becker, C.[†], Bush, E., Hardin, J., Wade, J., and Stoebel, D. **The genome-wide transcriptional response to varying RpoS levels in *Escherichia coli* K-12**, *Journal of Bacteriology*, 199:e00755-16, 2017. <http://biorxiv.org/content/early/2016/10/21/082537>
22. Evans, C.[†], Hardin, J., Stoebel, D. **Selecting between-sample RNA-Seq normalization methods from the perspective of their assumptions**. *Briefings in Bioinformatics*, bbx008, 2017. <https://arxiv.org/abs/1609.00959>
 - Tutorial on RNASeq Normalization and Differential Expression (Computational Genomics Summer Institute @ IPAM, 2016): <https://www.youtube.com/watch?v=YrQPA23PXSy&index=6&list=PLHyI3FbmV0Sd763rgnjcgpgG3EkFgdK-2b>
 - Assumptions in Normalizing RNASeq Data (Computational Genomics Summer Institute @ IPAM, 2016): https://www.youtube.com/watch?v=TwW_8-ZhfCM
21. Coleman, J.[†], Replogle, J.[†], Chandler, G., and Hardin, J. **Resistant Multiple Sparse Canonical Correlation**. *Statistical Applications in Genetics and Molecular Biology*, 15: 123-138; 2016. <http://arxiv.org/abs/1410.3355>
20. Hardin, J., Hoerl, R., Horton, N.J., and Nolan, D. “Data Science in Statistics Curricula: Preparing Students to ‘Think with Data’.” *The American Statistician* 69: 4, 2015. <http://arxiv.org/abs/1410.3127>
19. Hardin, J., Sarkis, G., and URC, P.C.[†] “Network Analysis with the Enron Email Corpus.” *Journal of Statistics Education*, 23:2, 2015. <http://arxiv.org/abs/1410.2759> (P.C. URC stands for the Pomona College Undergraduate Research Circle whose members for this project were Timothy Kaye, David Khatami, Daniel Metz, and Emily Proulx.) JSE url: <http://ww2.amstat.org/publications/jse/v23n2/hardin.pdf>
18. Hardin, J., Garcia, S.R., and Golan, D. **A method for generating realistic correlation matrices**. *Annals of Applied Statistics*, 7: 1733-1762, 2013. <http://arxiv.org/abs/1410.3370>
17. Brieger, K.[†], and Hardin, J. **Medicine and Statistics: the inextricable link**, *Chance*, 25: 31-34; 2012.

16. Head, A.[†], Hardin, J., Adolph, S.; **Methods for estimating peak physiological performance and correlating performance measures**, *Environmental and Ecological Statistics*, **19**: 127-137; 2012.
15. Karnovsky, N.J., Brown, Z.W.[†], Welcker, J., Harding, A.M.A., Walkusz, W., Cavalcanti, A., Hardin, J., Kitaysky, A., Gabrielsen, G., Grmillet, D. **Inter-colony comparison of diving behavior of an Arctic top predator: implications for warming in the Greenland Sea**, *Marine Ecology Progress Series*, **440**: 229-240; 2011. (DOI: 10.3354/meps09351)
14. Grosfils, E.B., Long, S.M.[†], Venchuk, E.M.[†], Hurwitz, D.M.[†], Richards, J.W.[†], Kastl, B.[†], Drury, D.E.[†], and Hardin, J., **Geologic map of the Ganiki Planitia quadrangle (V-14), Venus: U.S. Geological Survey Scientific Investigations Map 3121**, 2011.
<http://astrogeology.usgs.gov/Projects/PlanetaryMapping/MapStatus/VenusStatus/V14.html>
13. Richards, J.[†], Hardin, J., Grosfils, E.; **Weighted Model-Based Clustering for Remote Sensing Image Analysis**, *Computational Geosciences*, **14**: 125-136; 2010. (DOI: 10.1007/s10596-009-9136-z)
12. Hardin, J., Wilson, J.; **A note on oligonucleotide expression values not being normally distributed**, *Biostatistics*, **10**: 446-450; 2009.
11. Yiu, G.[†], McCord, A.[†], Wise, A.[†], Jindal, R.[†], Hardee, J.[†], Kuo, A.[†], Yuen Shimogawa, M.[†], Cahoon, L., Wu, M., Kloke, J., Hardin, J., Mays Hoopes, L.L.; **Pathways Change in Expression During Replicative Aging in *Saccharomyces cerevisiae***, *Journal of Gerontology*, **63A**: 21-34; 2008.
10. Hardin, J., Mitani, A.[†], Hicks, L.[†], VanKoten, B.[†]; **A Robust Measure of Correlation between Two Genes on a Microarray**, *BMC Bioinformatics*, **8**:220; 2007.
9. Adolph, S., Hardin, J.; **Estimating Phenotypic Correlations: Correcting for Bias Due to Intraindividual Variability**, *Functional Ecology*, **21**:178-184; 2007.
8. Wise, A.[†], Hardin, J., Hoopes, L.; **Yeast Through the Ages: a statistical analysis of genetic changes in aging yeast**, *Chance*, **19**: 39-44; 2006.
7. Hardin, J., Hoopes, L., Murphy, R.[†]; **Analyzing DNA Microarrays with Undergraduate Statisticians**, *Proceedings of the Seventh International Conference on Teaching Statistics*, 2006.
<http://www.stat.auckland.ac.nz/~iase/publications.php?show=17>
course modules available at: <http://pages.pomona.edu/~jsh04747/courses/microarray/modules.htm>
6. Hardin, J., Rocke, D.; **The Distribution of Robust Distances**; *Journal of Computational and Graphical Statistics*, **14**: 928-946; 2005.
5. Hardin, J., Waddell, M., Page, D., Zhan, F., Barlogie, B., Crowley, J., Shaughnessy, J.; **Evaluation of Multiple Models to Distinguish Closely Related Forms of Disease Using DNA Microarray Data: an Application to Multiple Myeloma**, *Statistical Applications in Genetics and Molecular Biology*, **3**: article 10; 2004.

4. Hardin, J., Rocke, D.; **Outlier Detection in the Multiple Cluster Setting Using the Minimum Covariance Determinant Estimator**, *Computational Statistics and Data Analysis*, **44**: 625-638; 2004.
3. Durbin, B., Hardin, J., Hawkins, D., Rocke, D.; **A Variance-Stabilizing Transformation for Gene-Expression Microarray Data**; *Bioinformatics*, **18**: S105-S110; 2002.
2. Zhan, F., Hardin, J., Kordsmeier, B., Bumm, K., Zheng, M., Tian, E., Sanderson, R., Yang, Y., Wilson, C., Zangari, M., Anaissie, E., Morris, C., Muwalla, F., van Rhee, F., Fassas, A., Crowley, J., Tricot, G., Barlogie, B., Shaughnessy, J.; **Global Gene Expression Profiling of Multiple Myeloma, Monoclonal Gammopathy of Undetermined Significance, and Normal Bone Marrow Plasma Cells**; *Blood*, **99**: 1745-1757; 2002.
1. Coleman, D., Dong, X., Hardin, J., Rocke, D.M., Woodruff, D.L.; **Some Computational Issues in Cluster Analysis with no a priori Metric**; *Computational Statistics and Data Analysis*, **31**: 1-11; 1999.

- **Chapter in an edited book**

3. Hardin, J., Kloke, J.; **Statistical Analyses**, In *Current Protocols in Essential Laboratory Techniques*, eds. S. Gallagher and E. Wiley, John Wiley & Sons, Inc.: New York; 2017.
2. Kloke, J., Hardin, J.; **Statistical Analyses**, In *Current Protocols in Essential Laboratory Techniques*, eds. S. Gallagher and E. Wiley, John Wiley & Sons, Inc.: New York; 2008.
1. Pauler, D., Hardin, J., Faulkner, J., Leblanc, M., Crowley, J.; **Survival Analysis with Gene Expression Arrays**. In *Handbook of Statistics 23: Advances in Survival Analysis*, eds. N. Balakrishnan and C.R. Rao, Elsevier Science: Amsterdam; 2004.

- **Pre-prints**

2. Duron, C., Pan, Y., Gutmann, D., Hardin, J., Radunskaya, A. **Using Network Complexity Measures to Identify Drug Targets**, *Journal of Mathematical Biology*, revise and resubmit.
1. Cruz, M.[†], Wei, A.[†], Hardin, J., and Radunskaya, A. **Long Term Averages of the Stochastic Logistic Map**. In preparation.

- **Other Papers**

15. Hardin, J., Horton, N. **Ensuring That Mathematics is Relevant in a World of Data Science**, *Notices of the AMS*, October, 2017.
14. Hardin, J. **Expectations and Skills for Undergraduate Students Doing Research in Statistics and Data Science**, *Amstat News*, September, 2017.
13. Evans, C.[†], Hardin, J., Huber, M., Stoebel, D., and Wong, G.[†] **Differential expression analysis for multiple conditions**. 2017. <http://arxiv.org/abs/1410.3370>

12. Blog on the ASA's 2016 Presidential Election Prediction Contest, <https://www.r-bloggers.com/presidential-election-predictions-2016-an-asa-competition/>; also featured on the Data Skeptic podcast, <http://dataskeptic.com/epnotes/election-predictions.php>, 2016.
11. Blog on using tactile simulations in class, "Chocolate: tactile simulations without data collection," <https://www.causeweb.org/sbi/?p=1163>, 2016.
10. Guest editor for *The American Statistician* with Nick Horton at Amherst College. Put together a special issue on the ASA's 2014 updated curriculum guidelines for undergraduate programs in statistics <http://www.amstat.org/education/curriculumguidelines.cfm>.
 - Horton, N. and Hardin, J. **Teaching the Next Generation of Statistics Students to "Think with Data": Special Issue on Statistics and the Undergraduate Curriculum**, *The American Statistician*, 69: 4, 2015. [As of Oct 26, 2017, the second most read article in *The American Statistician*.]
 - Hardin, J. and Horton, N. "Preparing the Next Generation of Students in the Mathematical Sciences to 'Think with Data' ," <http://blogs.ams.org/matheducation/2016/02/22/preparing-the-next-generation-of-students-in-the-mathematical-sciences-to-think-with-data/>, 2016.
 - Horton, N. " Teaching Next Generation to 'Think with Data' " <http://www.datascienceasn.org/content/teaching-next-generation-think-data>, 2016.
9. Guest editor for *Chance*, put together a special issue on Culture of Statistics in Medicine. Responsible for finding all of the contributed articles, finding referees, refereeing, putting the articles together, and writing the following articles:
 - Hardin, J. **Editor's Letter**, *Chance*, 25: 3; 2012.
 - Hardin, J. **Changes Across 25 Years of Medicine**, *Chance*, 25: 35-37; 2012. [This piece is a series of interviews with experts in the field of medicine on their views of how statistics is changing medicine. I interviewed the editor of the *New England Journal of Medicine*, a preeminent doctor/researcher of lung cancer, the director of the LA County Department of Public Health, and a Harvard statistician who sits on the editorial board of the *New England Journal of Medicine*.]
8. Hardin, J.; *biwt* package as a contribution to the statistical software R. 2009.
7. Hardin, J.; **Book Review: DNA Microarrays and Related Genomics Techniques: Design Analysis, and Interpretation of Experiments** by D.B. Allison, G.P. Page, T.M. Beasley, and J.W. Edwards, *Journal of Biopharmaceutical Statistics*, 17: 187-190; 2007.
6. Hardin, J.; **Book Review: Introduction to Statistics Through Resampling Methods and R/S-Plus** by Philip Good, *The American Statistician*, 60: 343-344; 2006.
5. Hardin, J.; **Book Review: Design and Analysis of DNA Microarray Investigations** by R. M. Simon, E.L. Korn, L.M. McShane, M.D. Radmacher, G.W. Wright, and Y. Zhao, *Journal of Biopharmaceutical Statistics*, 15: 747-749; 2005.

4. Altman, N., Banks, D., Hardwick, J., Roeder, K., Craigmile, P., Hardin, J., and Gupta, M. **The IMS New Researchers' Survival Guide**, Institute of Mathematical Statistics; 2005. <http://www.imstat.org/publications/books/NewResearchersGuide.pdf>
3. Hardin, J. **IMS New Researchers' Conference**, *IMS Bulletin*, **34**: Issue 9, 5; 2005.
2. Escobar, A.[†], Myhre, J., Hardin, J.; **Statistics Colloquia at Undergraduate Colleges**, *Amstat News*, Issue #331; January 2005,.
1. Hardin, J.; **Microarray Data from a Statistician's Point of View**, *STATS: The Magazine for Students of Statistics*, **42**: 4-13; Winter 2005.

STUDENT SUCCESSES

Summer research – submitted to Undergraduate Statistics Research Project Competition Bag of Little Random Bootstraps , Z. Xu	2017
DataFest - Judges' Choice Award J. Carney, H. Shin, A. Starr	2017
Research Circle - Winning Paper Undergraduate Statistics Research Project Competition https://www.causeweb.org/usproc/USRESP%20Winning%20Projects Quantifying and Comparing Centrality Measures for Network Individuals as Applied to the Enron Corpus , T. Kaye, D. Khatami, D. Metz, E. Proulx	2014
Kaye, T., Khatami, D., Metz, D., Proulx, E. Quantifying and Comparing Centrality Measures for Network Individuals as Applied to the Enron Corpus ; <i>SIAM Undergraduate Research Online</i> , 7 : 2014.	
DataFest - Best Insight J. Coleman, M. Cruz, B. DeRose, C. Evans, R. Knickerbocker, K. Lu, D. Owens-Oas, B. Shand, B. Williamson	2013
DataFest - Best Use of External Data K. Kumbier, E. Parks, J. Replogle	2012
DataFest - Best Visualization, honorable mention D. DiPalma, T. Stutz	2012

PROFESSIONAL WORKSHOPS & ORGANIZED SESSIONS

Computational Genomics Summer Institute, IPAM, UCLA Teaching Bioinformatics Lunch http://computationalgenomics.bioinformatics.ucla.edu/archive/2017-archive/	July 2017 Program Faculty
Computational Genomics Summer Institute, IPAM, UCLA Tutorial on RNASeq Normalization and Differential Expression https://www.youtube.com/watch?v=YrQPA23PXSy&index=6&list=PLHyI3FbmV0Sd763rgnjcgpG3EkFgdK-2b	July 2016 Program Faculty
Computational & Visualization Consortium Workshop, Claremont, CA Dynamic Data and Working with Data http://cvc.mosaic-web.org/Summer2016/schedule2016.html	June 2016 Organizer
Computational & Visualization Consortium Workshop, Claremont, CA Project: Dynamic Data	July 2015 Funded Participant
Joint Statistical Meetings, Montreal Herd Immunity: Teaching Techniques for the Health Sciences	August, 2013 Organizer
Institute for Pure and Applied Mathematics, UCLA Mathematical and Computational Approaches in High-Throughput Genomics	Fall, 2011 Funded Participant
Strengthening Bridges between Statistics and the Natural Sciences Funded by the Mellon Foundation	January, 2011 Organizer
Student/Faculty Research Models in Computational Biology Funded by the Mellon Foundation	June 18-20, 2008 Organizer
The Future of Statistics Consultation, Training and Curriculum across the Liberal Arts College Funded by the Mellon Foundation	July 25-27, 2007 Organizer
Mathematical Sciences Research Institute, Berkeley, CA Mathematical Systems Biology of Cancer	May 3-5, 2006 Funded Participant
Mathematical Biosciences Institute, Columbus, OH Emerging Genomic Technologies and Data Integration Problems	February 21-24, 2005 Funded Participant
Genome Consortium on Active Teaching, Washington, DC Best Practices Workshop	July 6-9, 2004 Workshop Instructor
Genome Consortium on Active Teaching, Seattle, WA Best Practices Workshop	August 13-15, 2003 Founding Organizer

PROFESSIONAL PRESENTATIONS

“Why I mentor” Women in Statistics & Data Science, La Jolla, CA	2017
“Expectations and Skills for Undergraduate Students doing Research in Statistics and Data Science” Joint Statistical Meetings, Baltimore, MD	2017
“Assumptions in Normalizing RNA-Seq Data” Bioinformatics Seminar, UCLA, CA	2017
“Where do Mathematics and Statistics fit in to a World of Data Science?” Breaking Boundaries in STEM Education Research, Loyola Marymount University, CA	2017
“Dynamic Data in the Statistics Classroom” (e-poster) Women in Statistics and Data Science Conference, Charlotte, NC	2016
“Assumptions in Normalizing RNASeq Data” Computational Genomics Summer Institute, IPAM, UCLA https://www.youtube.com/watch?v=TwW_8-ZhfCM	2016
“Dynamic Data in the Statistics Classroom” UseR, Palo Alto, CA https://channel9.msdn.com/Events/user-international-R-User-conference/user2016/Dynamic-Data-in-the-Statistics-Classroom	2016
“Dynamic Data in the Statistics Classroom” (5 min e-poster) eCOTS (electronic Conference on Teaching Statistics) https://www.causeweb.org/cause/ecots/ecots16/posters/a/7	2016
“Resistant Multiple Sparse Canonical Correlation with High-Throughput Data” Statistics Seminar, UC Irvine	2016
“The Undergraduate Curriculum of the Future” Joint Statistical Meetings, Seattle, WA	2015
“ ‘Data’ vs. ‘Fest’: the student perspective at DataFest” Joint Statistical Meetings, Boston, MA	2014
“DESeq Plus: expanding DESeq to comparisons of more than 2 groups” EDGE Program Mathematics Colloquium, Claremont, CA (also presented at IPAM workshop, Lake Arrowhead, CA (2014); UCLA Statistics Seminar, LA, CA (2014))	2014
“Towards a more conceptual way of understanding and implementing inferential rules” Poster Presenter, International Conference on Teaching Statistics, Flagstaff, AZ	2014
“Big Data, Data Science, and Next Steps for the Undergraduate Curriculum” Electronic Conference on Teaching Statistics	2014
“Robust Sparse Canonical Correlation with High-Throughput Data” IPAM workshop, Lake Arrowhead, CA	2013
“Biweight Estimation for Robust Analysis of High Throughput Data” International Conference on Robust Statistics, Burlington, VT	2012

- “Exploring Relationships: A Method for Generating Realistic Correlation Matrices” 2012
Loyola Marymount University, Statistics Seminar
(also presented at CSU Fullerton, Statistics Seminar (2011))
- “Outliers when clustering microarray data” 2010
3rd Annual Southern California Women in Math Symposium, Claremont, CA
(also presented at Claremont Colleges OR / Statistics / Math Finance Seminar, Claremont, CA (2009);
Claremont Colleges Mathematics Colloquium, Claremont, CA (2008);
Joint Statistical Meetings, Denver, CO (2008))
- “Using False Discovery Rates to Determine Cutoffs for Cluster Membership” 2010
Joint Statistical Meetings, Vancouver, BC
- “Biweight Correlation as a Measure of Correlation Between Genes on a Microarray” 2008
Statistics Colloquium, San Diego State University
(also presented at Department of Statistics, Cal Poly, San Luis Obispo (2006);
Division of Biostatistics, UC Davis (2006);
Department of Statistics & Actuarial Science, U of Waterloo (2006);
Horvath working group, UCLA (2005))
- “A Robust Measure of Correlation Between Two Genes on a Microarray” 2007
Graduate Seminar in Mathematics, CSU, Channel Islands
(also presented at Claremont Colleges Statistics Colloquium, Claremont, CA (2007);
Department of Statistics, UC, Riverside (2006);
Colloquium for Women in Mathematics, University of Southern California (2006);
Howard Hughes Summer Series, Claremont, CA (2006))
- “Analyzing DNA Microarray Data with Undergraduate Statisticians” 2006
Invited speaker, Joint Statistical Meetings, Seattle, WA
(also presented at Invited speaker, 7th International Conference on Teaching Statistics, Salvador, Brazil
(2006))
- “Collaborating, Data Analysis, and Science in Statistical Education” 2005
Invited Speaker, Joint Statistical Meetings, Minneapolis, MN
- “Using Robust Measures to Describe Distributions and Similarities of Microarray Data” 2005
Mathematics Colloquium, Cal State Univ, Long Beach
(also presented at US/Japan Conference on Biostatistics, Seattle, WA (2004);
Joint Statistical Meetings, Toronto, Ontario (2004))
- “Variability Sources in Gene Expression Data” 2004
Poster Presenter, Intelligent Systems of Molecular Biology, Glasgow, Scotland
- “Transformations and Simulations of Microarray Data” 2003
Statistics Colloquium, University of California San Diego
- “Simulating microarray data using the t-distribution” 2003
Joint Statistical Meetings, San Francisco, CA
(also presented at Working Group on Model Based Clustering, University of Washington, Seattle, WA (2003))
- “Analyzing Microarray Data – Difficulties and Disasters” 2003
Claremont Colleges Statistics Colloquium, Claremont, CA
(also presented at Claremont Colleges Mathematics Colloquium, Claremont, CA (2003))

- “Model Based Clustering and Outlier Detection in Microarray Data” 2002
Invited Speaker, Joint Statistical Meetings, New York City, NY
- “The Use of Gene Expression Profiling in the Quest to Understand the Molecular Basis of Multiple Myeloma” 2001
Invited presenter, Southwest Oncology Group Continuing Education Workshop, Chicago, IL
- “Determining Outlying Points” 2001
Williams College Mathematics and Statistics Colloquium, Williamstown, MA
(also presented at Claremont Colleges Mathematics Colloquium, Claremont, CA (1999))
- “A Basic Overview of Analyzing Microarray Data” 2001
Statistics Seminar, Department of Statistics, University of California, Davis
- “Outlier Detection: an Application to Microarray Data” 2001
Microarray Working Group, Department of Biostatistics, University of Washington, Seattle, WA
- “Robust Model-Based Clustering of Genes in Microarray Data: Are there gene clusters?” 2000
Poster presenter, Critical Assessment of Microarray Data Analysis, Duke University, Durham, NC
- “Robust Clustering with Minimum Covariance Determinant Estimation” 2000
Invited Speaker, 7th Conference of the International Federation of Classification Societies, Namur, Belgium
- “The Distribution of Robust Distances” 1999
New Researchers Conference, Sponsored by the Institute of Mathematical Statistics, Baltimore, MD
(also presented at Joint Meeting of the Western North American Region of the International Biometric Society and the Institute of Mathematical Statistics, Seattle, WA (1999);
Workshop on Robust Analysis of Multivariate Data: Outlier Detection, Cluster Identification, and Data Mining. Technische Universität Braunschweig, Braunschweig, Germany (1998))

OTHER PRESENTATIONS

- “Models, Bias, and Social Justice” 2017
Math Snacks, Department of Mathematics, Pomona College, CA
- “Communities of Learning in a Math Department” 2016
AALAC Conference on Inclusivity in Economics, Pomona College, CA
- “Finding Life’s Music Through Statistical Noise” 2012
Fall Faculty Lecture Series, Pomona College, CA
- “9 out of 10 Seniors Prefer This Freshman Seminar” 2012
Topic session on first year seminars in statistics:
Catch 'Em While They're Young: Statistics as a First-Year Seminar
Joint Statistical Meetings, San Diego, CA
(also presented at Family Weekend, Pomona College (2011); CAUSE Webinar, Teaching & Learning Series (2009))
- “Bayes Goes to Bat: using baseball to introduce Bayesian estimation” 2009
CAUSE Webinar, Activity Series
- “Polling and Exit Polling” 2008
Panel on Election Polling, Pomona College

“Statistical Conundrums” Parents’ Weekend, Pomona College (also presented at Mathematics Talent Search Honors Day, Pomona College (2005))	2007
“Translating Statistical Results into Public Policy” Panelist for the forum on “The Translator’s Art – Basic Problems in Different Languages,” sponsored by the Pacific Basin Institute, Claremont, CA	2003

COLLEGE SERVICE

Faculty Personnel Committee	2016-2018
Search committee to hire Athletic Director	2015
President, Pomona College Chapter of Phi Beta Kappa	2015-2016
Vice President, Pomona College Chapter of Phi Beta Kappa	2014-2015
Faculty Athletic Representative	2013-2016
Health Sciences Committee	2010-2011, 2012-2013
Ad Hoc Faculty Advisor, Pomona Student Union, 2010 - present	
Chair, search committee tenure-track line in Statistics	2009-2010
Dean Search Committee	2008
Grievance Committee	2008-2010
Orientation Committee	2006-2008
Chair, search committee to hire a three-year post-doctoral Statistician	2004-2005
Search committee to hire a Statistician at HMC	2004-2005
Search committee to hire a Bioinformatician (Biology department)	2004-2005
Smith Campus Center Planning Committee	2004-2005
Alumni Association Strategic Planning Committee	2004-2005
Ad Hoc Advisor, Pomona College Student Affairs Committee	2003-present
Alumni Admissions Volunteer, Pomona College	1995-present

PROFESSIONAL SERVICE

Associate Editor, <i>The American Statistician</i>	2014-present
MAA Hogg Award Selection Committee	2014-2016
Judge, Intel International Science Fair	2011, 2014, 2017
elected Vice Chair, District 6, Council of Chapters Governing Board of ASA	2014-2016
ASA Workgroup to Revise the Undergraduate Guidelines for Statistics Programs	2013-2014
Associate Editor, <i>Journal of Statistics Education</i>	2013-present
Associate Editor, <i>Chance</i>	2010 - present
Search Committee for Executive Editor, <i>Chance</i>	2010 & 2013
Waller Education Award Committee	2008-2011
elected Treasurer, Southern California ASA	2008-2014
elected Representative-at-Large, ASA Section on Statistics Education	2007-2009

Reader, AP Statistics Exam	2006
Judge, WNAR Student Paper Competition	2006
President, Sigma Xi, Claremont Colleges Chapter	2004-2005
Chair, IMS New Researchers Committee	2004-2005
Co-founded and help organize Claremont Colleges Statistics Colloquium	2003-present
Vice President, Sigma Xi, Claremont Colleges Chapter	2003-2004
elected Secretary, Caucus for Women in Statistics	2002-2004
Member, New Researchers Committee	2002-2005
elected Representative-at-Large, Caucus for Women in Statistics	2000-2002
Referee, <i>Chance</i> , <i>Journal of the American Statistical Association</i> , <i>BMC Medical Genomics</i> , <i>Journal of Computational and Graphical Statistics</i> , <i>BMC Bioinformatics</i> , <i>Cancer Informatics</i> , <i>Statistics & Computing</i> , <i>Journal of Statistics Education</i> , <i>Statistics in Medicine</i> , <i>IEEE/ACM Transactions on Computational Biology and Bioinformatics</i> , <i>Briefings in Bioinformatics</i> , <i>Statistical Applications in Genetics and Molecular Biology</i> , <i>Bioinformatics</i> , <i>Computational Statistics and Data Analysis</i> , <i>Knowledge and Information Systems</i> , <i>The American Statistician</i> , <i>PLoS ONE</i> , <i>Reinvention: a Journal of Undergraduate Research</i>	
Reviewer, Springer	2010
Reviewer, CRC Press	2009
Reviewer, Key College Press	2003
Reviewer, Prentice Hall	2003

OTHER SERVICE

Pomona Scholars of Mathematics Faculty	2014-2017
Introduction of Michael Starbird, honorary degree recipient	2014
Host for the Downing College Scholar	2014
Pomona Academy for Youth Success Faculty	2012
Enhancing Diversity in Graduate Education (EDGE) Instructor (short course)	2008
Summer Scholars Enrichment Program Mathematics Faculty	2008
Orientation Adventure faculty representative	2005, 2006
Summer Scholars Enrichment Program Research Faculty	2006
Seminar on how to use L ^A T _E X for math undergraduates	2005, 2006, 2009
Organized a panel for undergraduates: “Women in Mathematics”, Pomona College	2005
Volunteer Swim Instructor, Pomona College	2003
President, Division of Statistics Graduate Student Group	1999-2000
Teaching Assistant Consultant, Teaching Resources Center, UC Davis	1998-2000
Recruitment Committee, Division of Statistics, UC Davis	1998-2000
Mentor for Undergraduate, Opportunities in Engineering and Science, UC Davis	1998